

**Commonwealth of Kentucky**  
**Division for Air Quality**  
***PERMIT STATEMENT OF BASIS***

Final  
Conditional Major, Operating  
Permit: F-07-033 Revision 2  
Berea College  
Berea, KY 40404  
August 20, 2008  
Massoud Kayvanjah, Reviewer

|                  |              |
|------------------|--------------|
| SOURCE ID:       | 21-151-00006 |
| AGENCY INTEREST: | 39053        |
| ACTIVITY:        | APE20080003  |

**PRESENT ACTIVITY: F-07-033 R2**

The Division received a minor revision application from Berea College (Berea) on August 14, 2008, to correct and update the insignificant activities based on internal audit performed by the institution.

Based on the information contained in the application, the indirect heat exchanger with capacities less than 1 MMBtu/hr have been moved to Section B of the permit and identified as emission unit 09-b. The remaining insignificant units will are still in Section C of the permit. Although the small indirect heat exchangers have been moved to Section B, there will be no emission limit applicable to them, however, the source shall monitor and keep record of the fuel usage. The source wide emissions limit and the applicable regulations remain unchanged.

**PAST ACTIVITIES:**

**MINOR PERMIT REVISION - F-07-033 R1**

The Division received a minor modification from Berea on February 07, 2008, for the installation of three new natural gas fired boilers and two new natural gas fired hot water heaters. The boilers heat capacities are 1.36 MMBtu/hr (EU 09), 0.69 MMBtu/hr, and 0.75 MMBtu/hr, and the hot water heaters are rated at 0.199 MMBtu/hr each. The two existing boilers rated at 6.25 MMBtu/hr each (EU06-01 & EU06-02), will eventually be removed from the source after the new units are in operation. The new unit (EU09) is subject to the applicable state or federal regulations in the Conditional Major permit, and the source wide emissions cap will stay unchanged.

**SOURCE DESCRIPTION:**      **F-07-033**

Berea College submitted a renewal and reclassification application to the Division on May 10, 2007, and supplemental information on June 07, 2007 and July 06, 2007, based on notice of deficiency issued on May 21, 2007. The facility currently operates under operating permit V-03-005 R2 that will expire on May 13, 2008. The reclassification is based on decommissioning and removal of two coal-fired units, EP-01 & EP-02 (rated at 107.7 and 71.8 MMBtu/hr) and two natural gas fired units EP-03 & EP-05 (rated at 52.4 and 50.0 MMBtu/hr). These eliminations have reduced the source wide emissions of all regulated air pollutants below the major source threshold; hence this permit is being issued as federally enforceable permit for non- major source (Conditional Major) instead of renewing the existing Title V permit.

The facility is currently operating the two remaining large boilers 18 MMBtu/hr (EU08-01 & 02), each on natural gas with a back up fuel oil, two 6.25 MMBtu/hr (EU06-01 & 02), one 1.26 MMBtu/hr (EU-07) and one 0.75 MMBtu/hr (Insignificant Activity NO. 23) all on natural gas. Basically, emission of regulated air pollutants from the boilers is below fifty tons per year; however, the paint booth has a utilization capacity of a major source to generate volatile organic compounds (VOC) above 100 tons per year. Considering the combined

annual potential emissions of the heating system plus the rated potential of the furniture paint booth for VOC emissions (EU-04), Berea College has the potential to exceed major source thresholds for the VOC pollutants and HAPs. Therefore the facility has requested a source wide annual emissions limit of 90 tons per year for VOC, 9 tons for single HAP, and 22.5 tons for combined HAPs to preclude the applicability of 40 CFR 63 Subpart JJ National Emission Standards for Wood Furniture Manufacturing Operations and 40 CFR 63 Subpart DDDDD National Emission Standards for Hazardous Air Pollutants for Industrial, Institutional Boilers and Process Heaters.

**COMMENTS:**

Allowable emissions for existing units (EP08-01, 02, EP06-01, 02, and EP07-01) will not change pursuant to 401 KAR 59:015 Section 3 (2): At such time as any affected facility is assigned an allowable emission rate by the cabinet, at no time thereafter shall that rate be changed due to inclusion or shutdown of any affected facility at the source.

**Applicable Regulations**

401 KAR 59:015, New Indirect Heat Exchangers, applicable to an emissions unit with a capacity less than 250 MMBtu/hr and commenced on or after April 9, 1972.

401 KAR 60:005, incorporating by reference 40 CFR 60, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, applicable to units less than or equal to 100 MMBtu/hr but greater than or equal to 10 MMBtu/hr commenced after June 9, 1989.

401 KAR 59:010, New process operations, applicable to a unit commenced on or after July 2, 1975

**Non-applicable regulation:**

40 CFR 63, Subpart DDDDD, National Emissions Standard for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters.

**Emission Units 08-01 and 08-02 :**

Two boilers @ 18 MMBtu/hr, each

Pursuant to 401 KAR 59:015, Section 4(1), particulate emissions shall not exceed 0.295 lb/MMBtu.

Pursuant to 401 KAR 59:015, Section 4(2), emissions shall not exceed 20 percent opacity, except 40 percent opacity shall be permissible for not more than 6 consecutive minutes in any 60 consecutive minutes while cleaning the fire box or blowing soot.

Pursuant to 401 KAR 59:015, Section 4(2), emissions shall not exceed 20 percent opacity, except while building a new fire for the period required to bring the boiler up to operating conditions

provided the method used is that recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.

Pursuant to 401 KAR 59:015, Section 5(1), sulfur dioxide emissions shall not exceed 0.98 lb/MMBtu each.

Pursuant to 401 KAR 60:005, incorporating by reference 40 CFR 60.43c (d), the PM and opacity standards apply at all times except during periods of startup, shutdown, or malfunction.

Compliance with allowable sulfur dioxide emission limitation while burning fuel oil shall be demonstrated by fuel supplier certification. Fuel supplier certification shall include the name of the supplier and a statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil in 40 CFR 60.41c.

Each unit is considered to be in compliance with the allowable SO<sub>2</sub>, PM, and opacity limitations while burning natural gas.

**Emission Units: 06-01 and 06-02:**

Two boilers rated @ 6.25 MMBtu/hr each, and

**Emission Unit 07-01:**

One boiler rated @ 1.26 MMBtu/hr

Construction Date: March 2005

Pursuant to 401 KAR 59:015, Section 4(1), PM emissions shall not exceed 0.295 lb/MMBtu, each.

Pursuant to 401 KAR 59:015, Section 4(2)(c) emissions shall not exceed 20% opacity based on a six-minute average, except a maximum of 40% opacity, shall be permissible for not more than 6 consecutive minutes in any consecutive 60 minutes during cleaning the fire-box or blowing soot.

Pursuant to 401 KAR 59:015, Section 4(2)(c), emissions shall not exceed 20% opacity based on a six minute average, except for emissions from an indirect heat exchanger during building a new fire for the period required to bring the boiler up to operating condition provided the method used is the recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.

Pursuant to 401 KAR 59:015, Section 5(1), SO<sub>2</sub> emissions shall not exceed 0.98 lb/MMBtu, each.

These units are considered to be in compliance with the allowable SO<sub>2</sub>, PM, and opacity limitations while burning natural gas.

**Emission Unit 04 (EP-04) Wood Surface Coating Operation**

One spray booth, spraying a mixture of lacquer, sealer, and thinner at rated 9.375 gallons/hr capacity. Since in surface coating practice the mixture is applied at much lower rate than the rated pump, the usage of material is considered for emission calculations rather than the pump operation hours.

**Control Device:** Four Baghouses (three indoor an one outdoor) with 98.1% control efficiency  
Construction commenced: January 1, 1980

Pursuant to 401 KAR 59:010, Section 3(2), particulate matter emissions into the open air shall not exceed  $[3.59 P^{0.62}]$  pounds per hour based on a three-hour average, where P is the hourly operating rate in tons per hour.

Pursuant to 401 KAR 59:010, Section 3(1)(a), any continuous emission(s) into the open air shall not equal or exceed twenty (20) percent opacity based on a six-minute average.

The permittee shall perform a qualitative visual observation of the opacity of emissions from control equipment on a monthly basis and maintain a log of the observations. If visible emissions from control equipment are seen, the permittee shall determine the opacity of emissions by Reference Method 9 and inspect the control equipment for any necessary repairs.

Additionally, records of the monthly usage of lacquer, thinner, and sealer shall be maintained.

**EMISSION CAPS DESCRIPTION:**

Maximum annual source wide VOC emissions from the spray booth and the boilers shall not exceed 90 tons/year. Maximum single HAP (Toluene) emissions shall not exceed 9 tons per year and combined HAP shall not exceed 22.5 tons per year.

**PERIODIC MONITORING:**

Monthly recordkeeping of fuel and surface coating material usage, maintaining current MSDS, and emissions calculations will be the proper methods for demonstrating compliance.

**OPERATIONAL FLEXIBILITY: NONE**

**CREDIBLE EVIDENCE:**

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.